



CITY OF LODI COUNCIL COMMUNICATION

AGENDA TITLE: Adopt Resolution Authorizing City Manager to Execute Task Order No. 2 with Nolte Associates, Inc., of Manteca, to Provide Engineering Services for G-Basin Stormwater Pump Station Design (\$245,165) and Appropriating Funds (\$250,000)

MEETING DATE: June 16, 2010

PREPARED BY: Public Works Director

RECOMMENDED ACTION: Adopt a resolution authorizing the City Manager to execute Task Order No. 2 with Nolte Associates, Inc., of Manteca, to provide engineering services for G-Basin Stormwater Pump Station design in the amount of \$245,165 and appropriating funds in the amount of \$250,000.

BACKGROUND INFORMATION: A Master Services Agreement with Nolte Associates, Inc., and Task Order No. 1 were approved by City Council on June 2, 2010. Task Order No. 1 covers the initial engineering services required to define and initiate the update to the Impact Mitigation Fee Program. Task Order No. 2 covers the design and preparation of plans and specifications for the stormwater pump station project at G-Basin (DeBenedetti Park).

Staff distributed requests for proposals to four engineering firms (Brown and Caldwell, Nolte Associates, Parsons Brinckerhoff, and West Yost Associates) having expertise in the design of stormwater pump stations. Four proposals were received and staff selected Nolte Associates, Inc., as the most qualified consultant for this project. The scope of services for Task Order No. 2 as submitted by Nolte Associates, Inc., is provided in Attachment A.

The stormwater pump station will be used to drain G-Basin (both the deep basin and shallow basin) after intense storms to preserve flood protection in the drainage area. During summer months or light rainstorms, stormwater and nuisance runoff will flow directly to and be stored in the deep basin. Design of the pump station is expected to be completed by March 2011 and construction will be completed by October 2011.

Staff recommends the Council authorize the City Manager to execute Task Order No. 2 in the amount of \$245,165 for the engineering services to design the G-Basin Stormwater Pump Station project. Staff recommends appropriating \$250,000 to cover contingencies and staff costs.

FISCAL IMPACT: None.

FUNDING AVAILABLE: Storm Drainage Impact Mitigation Fund (326)


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Attachment

APPROVED:


Konradt Bartlam, Interim City Manager

**CITY OF LODI
G BASIN STORMWATER PUMPING STATION PROJECT
DESIGN, BIDDING PERIOD, AND
CONSTRUCTION PERIOD ENGINEERING SERVICES**

**SCOPE OF SERVICES
June 2010**

The G Basin Stormwater Pumping Station (Project) is an integral element of the flood control facilities in the southwest part of the City of Lodi (City) serving an 878 acre watershed bounded by Harney Lane on the south, Lower Sacramento Road on the west, and the South Main Canal on the north and east. Presently this watershed drains to G Basin, a retention basin south of Century Boulevard. In the future, Basins F and I to the west of Lower Sacramento Road will also drain to G Basin. The existing storm drain and street system is designed to deliver a total 100-year storm runoff volume of 202 acre-feet to G Basin. To increase the function of G Basin, the G Basin pump station will draw down the stored water, discharging to the Beckman Park pump station via an existing 48-inch drain, and into the South Main Canal at a prescribed maximum rate of 30 cfs. It is not anticipated that any above ground buildings are necessary for the project, just simple control panels. However the site of the pump station is within the planned DeBenedetti Park and close to existing residences, so security and aesthetics are necessary project elements.

Nolte Associates, Inc. (Consultant) has been retained by the City to design the Project. Design and construction of the pump station is anticipated to be completed by November 2011. A scope of services for engineering services is presented below.

SCOPE OF SERVICES

The scope of services is divided into the following tasks:

1. Project Management and Quality Assurance/Quality Control (QA/QC)
2. Existing Utility and Data Collection
3. Site Surveying and Mapping
4. Preliminary Design Report (PDR)
5. 30%, 60%, and 100% Design Submittals
6. Constructability Review
7. Final Design Submittal – Bid Documents, Bid Assistance, and Construction Documents
8. Construction Support Services
9. Special Engineering Services

Task 1 - Project Management and Quality Assurance/Quality Control (QA/QC)

Proactive project management includes anticipating issues in advance, developing strategies to maintain schedule, keeping the project on budget, and maintaining close communication between the City and all project team members. Along with the monthly progress reports, the Consultant

Project Manager will provide a weekly short e-mail progress report to the City Project Manager. The weekly progress report will serve as an agenda for bi-weekly internal design team meetings.

1.1 Project Start-up Meeting

Upon notice to proceed, the Consultant will hold a project kickoff and client expectations meeting to acquaint all Project participants with the Project scope, approach, goals, and schedule. Discussion items to be addressed will include a review of the significant engineering issues associated with the Project, a description and clarification of the approach required to respond to these issues, a delineation of existing data available for the Project as well as required new data, and a verification of project milestone dates. A Project startup memorandum of the results of the kickoff meeting will be distributed by the Consultant to all participants. The project startup memorandum will be submitted to the City within one week following the kickoff meeting and contain, as a minimum:

- a. Project Description
- b. Summary of Scope of Services
- c. Project Schedule/Milestone Events
- d. Review of Significant Engineering, and project issues
- e. Project Contacts list
- f. Action Item Log
- g. Budget/Job Cost Accounting

1.2 Technical Meetings

Following the initial project meeting, two technical meetings will be held to discuss in detail the prior studies such as the hydrology and storm drain master plan, the function and operation of the Beckman Park pump station, construction experiences on the 72-inch storm drain, geotechnical observations during recent construction, aesthetics, and security.

1.3 Project Status Meetings

Design review meetings will be held with City staff following each submittal. Team meetings (approximately six) will occur during the preparation of the Preliminary Design Report (PDR) and final design. Each meeting will have a clear agenda, work through a list of key issues, and develop action items. Agenda items at the review meetings will include status of design elements, unresolved project issues, key milestone events, upcoming schedule, and budget status. Meeting minutes will be prepared by the Consultant and will be submitted to the City within three days. Comments will be solicited from stakeholders and decisions reached will be affirmed. This affirmation process is intended to resolve differences between stakeholders and build consensus. These decisions will become the framework of a decision log that will be maintained throughout the project. In addition, the Consultant will prepare and submit documentation describing the resolution of all City review comments on submittals. One presentation to the City Council upon project completion is also included under this task.

1.4 Schedule

A detailed Project design schedule will be prepared initially, updated with monthly progress reports, reviewed at each status meeting, and revised as necessary. The Project schedule will be used to monitor project progress and identify the Project tasks that are, or become, critical to the completion date.

1.5 QA/QC

This task includes effort budgeted for quality review. Initial peer review activities will focus on cost-reduction opportunities and development of sustainable design criteria. Later activities will include detailed plan checking to ensure completeness, discipline coordination, review for plan and specification consistency, and ensuring contract document biddability. The results of QC activities will be summarized and submitted to the City. Internal peer review for all deliverables is anticipated prior to submission to the City.

Task 1 Deliverables

- Project Startup Memorandum
- Meeting Minutes
- Decision Log
- Project Schedule
- Weekly Progress Memos
- Monthly Progress Reports (with invoices)
- Results of Peer Review Activities

Task 2 - Existing Utility and Data Collection

The Consultant will research, obtain and review existing data and utility information to identify necessary facilities and prepare a preliminary design.

2.1 As-built Plans

Within the site and along Century Boulevard there are existing sewer, water, electrical, storm drain, and communication lines. As available, as-built information will be obtained from the City and other utility providers, verified when necessary, and presented on the Project plans and documents.

2.2 Existing Utilities

When as-built information is not available, others sources of information will be located and reviewed, verified when necessary, and presented on the Project plans and documents. Each of these facilities has the potential to be impacted by the Project. This task will identify the location and probable depth of each facility. Potholing by City forces is anticipated. For the proposed Project, a utility relocation plan will be prepared and a summary of probable construction costs developed under Task 4.

2.3 Legal Descriptions

Site legal descriptions, title reports, and easements will be obtained, reviewed, and presented on the Project plans and documents.

2.4 Storm Drain Studies

Storm drain studies for the G Basin watershed (including the 2002 study by Stantec) will be obtained and reviewed to establish design criteria and constraints for the pump station design. Additional watershed hydrology or hydraulic studies are not anticipated in the design of the pump station.

2.5 Beckman Park Pump Station

Proper function of the G Basin pump station will require coordinated operation with the downstream Beckman Park pump station. Therefore, the operational constraints of the Beckman Park pump station will need to be identified. This task will identify if proper coordination of the two pump stations will require a highwater feedback signal to the G Basin pump station and/or signal to the Beckman Park station.

2.6 Proposed Site Design

The Consultant will obtain the proposed layout and grading plans for DeBenedetti Park at G Basin. Design of the pump station, well site, and adjacent secured area will need to be compatible with the park features.

Task 3 - Site Surveying and Mapping

3.1 Surveying

Survey and mapping activities include:

- a. Research and recover primary vertical control benchmark with datum elevations.
- b. Research and recover primary horizontal control monuments with coordinate values.
- c. Establish permanent Project specific survey control monuments based on the above datum proximate to the project site (Noted existing benchmark is City #9 17 located along the north side of Century 340 feet west of Sage).
- d. Perform point survey of proposed pump station site and access area back to Century Boulevard.
- e. Survey location and invert elevations of 48-inch, 60-inch, and 72-inch storm drains in the area.
- f. Compile a design quality base map exhibiting all of the above elements and any topographic information furnished by the City.

In support of the detailed design, additional surveying will be performed to supplement the initial survey as requested by the team designers. Pothole surveys will be performed as requested. A budget of two field days of survey crew time is assumed for this task.

Task 3 Deliverables

- Base Map

Task 4 - Preliminary Design Report (PDR)

The PDR will present the analyses and recommendations for several elements of the Project. An approved PDR will include discipline design standards and will serve as the basis for final design. The data collected in Tasks 2 and 3 will be used to develop a PDR which will show proposed locations and dimensions of new pump station facilities. Necessary profiles, sections, or details will be provided to support the evaluation and selection of the recommended design configuration. The preliminary design will include:

- a. Design criteria for hydraulic, mechanical, and electrical systems.
- b. Summary of geotechnical findings.
- c. Summary of foundation strategies, recommendations for electrical equipment enclosures.
- d. Description of pump station layout, access provisions, equipment enclosures.
- e. Summary of site improvements.
- f. Discussion of electrical controls, alarms, normal power, stand-by power, and SCADA integration.
- g. Probable construction cost.
- h. List of anticipated contract drawings and technical specifications.

During this task a variety of project specific issues will be considered and addressed during the analysis and design of the project such as noise, neighborhood relations, constructability, and access.

4.1 Hydraulics/Bypass Operation

This task will identify the various operational elements, the hydraulic constraints, the operational options, and the key design criteria for the pump station. Key elements include the internal diversion weir, gravity bypass piping, deep flow-through control gate, bypass control gate, and pumping system heads. To be determined in this task is the number and location of water level or flow monitors and systems that require automatic, manual, or remote control.

4.2 Pumping/Mechanical/Piping

An initial site visit will be held with the City to develop a complete understanding of what features need to be included for the pump station. During initial screening of key issues, two alternative site schemes/layouts will be developed and submitted to the City for comments. A conceptual design that incorporates the needs of the City and summarizes the pump station criteria will be prepared. The list of the mechanical and piping criteria will include the following:

- a. Pump operating head.
- b. Preliminary pump type, capacity, and number.
- c. Fundamental control and integration strategy.

- d. Enclosure requirement.
- e. Operation equipment (hoists, etc.).
- f. Wet well style.
- g. Force main components.
- h. Significant piping, valving, and conveyance structures.
- i. Trash control (self cleaning or capture with bypass racks).

4.3 Civil/Site/Utilities

The following tasks will provide a sufficient level of civil, utility, and site analysis to identify necessary facilities and prepare a preliminary design.

4.3a. Civil - The project will require construction in Century Boulevard and south into the currently unimproved park land. The civil design will present those roadway, landforms, and above ground and below ground facilities that will be impacted by the Project and the recommended modifications to those facilities. A plan, section, profile, foundation strategy, and details will be prepared for each component of the Project.

4.3b Utility Relocation - Within the site there are existing sewer, water, electrical, storm drain, and communication lines. Each of these facilities is likely to be impacted by the Project. This task will identify the location and probable depth of each facility. For each alternative that is to be analyzed, a utility relocation plan will be prepared and a summary of probable construction costs developed.

4.3c Site Design - The preliminary design of the recommended alternative will strive to match the proposed plan for DeBenedetti Park. If the layout, operation, or maintenance of the pump station requires minor adjustments to the Park plan, the needs of the pump station will be clearly identified to the City.

4.4 Debris Control

Debris control is a desired element of the G Basin design. Debris control is also desired on other storm drain systems in the City. This task will identify potential debris control systems, evaluate the effectiveness for this and other sites in the City, and recommend a preferred system. This effort will include inspection of up to five other potential debris control sites in the City, review the site constraints, evaluate the applicability of the different debris control systems and make recommendations to the City. Up to four different debris control systems will be evaluated for effectiveness, ease of retrofitting, operation, maintenance and cost.

4.5 Structural

For this task the structural engineer will coordinate with the mechanical and civil/hydraulic designers to establish the number, size, and location of the structural elements required on the Project for the recommended pump station layout. Using the best available soils information, the structural engineer will perform a preliminary foundation design. A foundation strategy and summary of probable construction costs will be prepared for each structural element.

4.6 Electrical/Controls

During the preliminary design phase, necessary instrumentation, controls, electrical service and backup power requirements and facilities will be identified for the recommended alternative. This includes coordination with remote level or flow monitors, integration with City-wide SCADA network, high water alarms, and offsite controls.

4.7 Geotechnical Analysis

During the preliminary design phase, readily available historic data will be located. Consultation with the designers and contractors for the G basin and the 72-inch storm drain will be performed. Based on other local projects, tentative recommendations for soil design parameters, seismic design, and foundation parameters will be presented. No geotechnical field investigation is anticipated. A recommendation will be made to the City for additional geotechnical studies if justified by potential foundation cost savings generated by less conservative design activities.

4.8 Architecture and Landscaping

During this task, architectural styles and details will be presented to the City for each of the above ground elements (including control building, if necessary), primarily for the perimeter and security fencing. It is assumed that the construction of DeBenedetti Park will follow the pump station construction and landscaping will be a part of the park construction. The design objective is to blend into the park or camouflage the facility from the public/residents views.

Task 4 Deliverables

- Five copies of the Preliminary Design Report summarizing the findings in Tasks 4.1 through 4.8 to determine the cost and schedule of the project.

Task 5 - 30%, 60%, and 100% Design Submittals

Based on the approved PDR, the Consultant will prepare the Project design documents. Development of plans, technical documentation, and summaries of probable construction costs will be an interactive process with all stakeholders to ensure that Project goals are met while developing a biddable, constructible, and environmentally appropriate project. Construction drawings will be prepared (22-inch by 34-inch plan sheet format) using AutoCAD software. Drawings will include General, Civil, Structural, Architectural, Mechanical, and Electrical. The project limits are understood to extend from Century Boulevard to the proposed pump station site. Design elements include:

- a. Pump station, wetwell, forebay.
- b. Debris control facility.
- c. Site/road work/security.
- d. Remote operation.
- e. Control panel.
- f. Transformer and switch board structure.
- g. Bypass, weir, and control gates 48-inch discharge pipeline.

5.1 Civil/Site/Utilities

The following tasks will provide the initial detailed design for site civil, utility relocation, and the diversion structure.

5.1a Site Design - A plan will be prepared for the limits of Project grading, limits of paving, and miscellaneous site improvements. Sections and initial details will be prepared. For 100% design, detailed grading and details of the miscellaneous site improvements will be prepared.

5.1b Utility Relocation - For each submittal, a plan will be prepared for all necessary utility relocations.

5.2 Architectural

Architectural styles will be selected and initial elevations and details prepared for each above ground structure. The 100% submittal will include detailed elevation views and other architectural details.

5.3 Structural

A structural foundation will be developed for each facility. Initial structural design of all structures will be prepared. Initial plan and details will be prepared for the structural elements of the several deep and shallow chambers, control facilities, and equipment pads. By the 100% design submittal, detailed structural plans and details will be complete for all structural elements.

5.4 Pumping/Mechanical/Piping

Final working head, pump size, and pump count will be established. The wet well and valve vault configuration will be established. The layout of the pump station including pumps, piping, valves, pump removal equipment, and other mechanical elements will be determined and a layout set. Plans, sections, and initial details will be prepared for all elements. Functional descriptions for the pump control sequencing equipment and other automated equipment will be developed.

5.5 Electrical/Controls

In coordination with the requirements of the pumping facilities and appurtenant automated equipment, the recommended instrumentation, controls, SCADA communications, and electrical service will be identified, designed, and presented in the project documents. Load lists and single line diagrams will be prepared. Instrumentation schematics for pump control and SCADA equipment will be developed.

5.6 Technical Specifications and Summaries of Probable Construction Costs

Technical specifications and summaries of probable construction cost will be prepared in Construction Specification Institute (CSI) format. Summary of probable construction costs will include allowances for escalation and market conditions. Front-end documents furnished by the City will be modified to match project requirements.

Task 5 Deliverables

- Five 11-inch by 17-inch hard copies and one full sized copy of the plan set and five copies of the specifications and summaries of probable construction costs of 30%, 60%, and 100% design.
- Design Review Workshop notes and responses to comments for 30%, 60%, and 100% Design Review Workshops.
- Electronic documents will be provided in AutoCAD (Ver. 2008) and Microsoft Word/ Excel (Ver. 2007) for the 100% submittal.

Task 6 - Constructability Review

Separate from the QA/QC reviews described earlier, the Consultant will incorporate constructability and staging solutions on the preferred project configuration to help ensure the design is as economical and as easy to construct as possible. Insight will be provided on key constructability issues such as:

- a. Construction staging.
- b. Maintaining storm drain function.
- c. High groundwater/dewatering.
- d. Proximity to existing utilities.
- e. Construction adjacent to existing CIP drain.
- f. Deep excavation/construction.

Task 6 Deliverables

- Technical memorandum summarizing results of constructability review of 60% submittal

Task 7 - Final Design Submittal – Bid Documents, Bid Assistance, and Construction Documents

The Consultant will submit bid documents including final design plans, specifications, and summaries of probable construction costs. Drawings for bid sets will be submitted in 22-inch by 34-inch format (stamped bid set) and digitally in Auto CAD R.2008 format with .pcp file. Specifications for bid sets will be submitted in original copy, 8½-inch by 11-inch bond sheet, unbound single-sided print for reproduction purposes with cover stamped “Bid Set”. A digital copy of specifications will be furnished in MS Word 2007 format. The Consultant will then provide the following services during the bidding and award period of the project to facilitate and streamline the process:

7.1 Coordinate Reproduction and Distribution of Bid Packages

Reproduction of the bid packages will be by City forces. The Consultant will coordinate the distribution of packages to builder exchanges and a list of contractors approved by the City. The Consultant will maintain and distribute periodically a plan holders list to prospective bidders.

7.2 Bid Period Services

The following services will be provided during the bid period:

- a. Attend the pre-bid meeting and site walk and respond to questions.
- b. Prepare responses to bidder's questions during the bid period.
- c. Prepare up to two addenda.
- d. Review bids, check for bid completeness, review bidder's qualifications.
- e. Recommend award to most responsive bidder.

7.3 Conformed Documents

The addenda will be incorporated into an original reproducible "Construction Set" drawings and specifications as directed by the City.

Task 7 Deliverables

- One set of reproducible final design plans, specifications, and summaries of probable construction costs. Drawings will be 22-inch by 34-inch size. Specifications will be 8½-inch by 11-inch, unbound, single-sided print.
- Up to two Addenda distributed.
- Technical documentation summarizing review of bid results and basis for recommended award.
- One set of reproducible and one electronic copy of conformed documents. Drawings will be 22-inch by 34-inch size. Specifications will be 8½-inch by 11-inch, unbound, single-sided print. Reproducible documents will be labeled "Construction Set". Electronic copies will be Auto CAD R.2008 with .pcp file for drawings and MS Word 2007 for specifications

Task 8 - Construction Support Services

The City will perform day to day inspections and administer the construction contract. The Consultant will assist by:

- a. Attending and participating in a preconstruction meeting.
- b. Reviewing for conformance with design drawings and specifications approximately 30 contractor's shop drawing submittals.
- c. Responding to approximately 25 RFIs from the contractor.
- d. Attending bi-weekly construction progress meetings (approximately ten).
- e. Preparing technical documentation for change order packages (approximately two).
- f. Reviewing change orders for merit and cost.
- g. Performing six monthly site visits.

- h. Attending and witnessing pump station startup and testing including documenting any deficiencies and developing a punch list.
- i. Reviewing contractor prepared O&M manual.
- j. Preparing record drawings from final project mark-ups provided by the contractor and/or the City.

Task 8 Deliverables

- One set of record drawings will be provided in 22-inch by 34-inch size.

Task 9 – Special Engineering Services

When requested by the City, the Consultant will perform special engineering services as agreed in writing. The Consultant will be compensated for special engineering services as extra work. Consultant services will not commence prior to receipt of a notice to proceed from the City. Special engineering services may include:

- a. Geotechnical investigation
- b. Construction inspections, resident engineering services
- c. Preparation of operation and maintenance manuals

RESOLUTION NO. 2010-88

A RESOLUTION OF THE LODI CITY COUNCIL AUTHORIZING
CITY MANAGER TO EXECUTE TASK ORDER NO. 2 WITH
NOLTE ASSOCIATES, INC. TO PROVIDE ENGINEERING
SERVICES FOR G-BASIN STORMWATER PUMP STATION
DESIGN AND FURTHER APPROPRIATING FUNDS

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WHEREAS, staff distributed requests for proposals to four engineering firms (Brown and Caldwell, Nolte Associates, Parsons Brinckerhoff, and West Yost Associates) having expertise in the design of stormwater pump stations; and

WHEREAS, four proposals were received and staff selected Nolte Associates, Inc., as the most qualified consultant for this project; and

WHEREAS, on June 2, 2010, City Council approved a master professional services agreement and Task Order No. 1 with Nolte Associates, Inc., for the initial engineering/financial services to update the Impact Mitigation Fee Program, and staff recommends that the Council authorize the City Manager to execute Task Order No. 2 in the amount of \$245,165 for the engineering services to design the G-Basin Stormwater Pump Station project; and

WHEREAS, staff further recommends appropriating \$250,000 for this project, which includes funds to cover contingencies.

NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council does hereby authorize the City Manager to execute Task Order No. 2 with Nolte Associates, Inc., of Manteca, California, in the amount of \$245,165 for engineering services for the G-Basin Stormwater Pump Station design; and

BE IT FURTHER RESOLVED that funds in the amount of \$250,000 be appropriated from the Storm Drainage Impact Mitigation Fund for this project.

Dated: June 16, 2010

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I hereby certify that Resolution No. 2010-88 was passed and adopted by the City Council of the City of Lodi in a regular meeting held June 16, 2010, by the following vote:

AYES: COUNCIL MEMBERS – Hansen, Hitchcock, Johnson, and Mounce

NOES: COUNCIL MEMBERS – None

ABSENT: COUNCIL MEMBERS – Mayor Katzakian

ABSTAIN: COUNCIL MEMBERS – None



RANDI JOHL
City Clerk